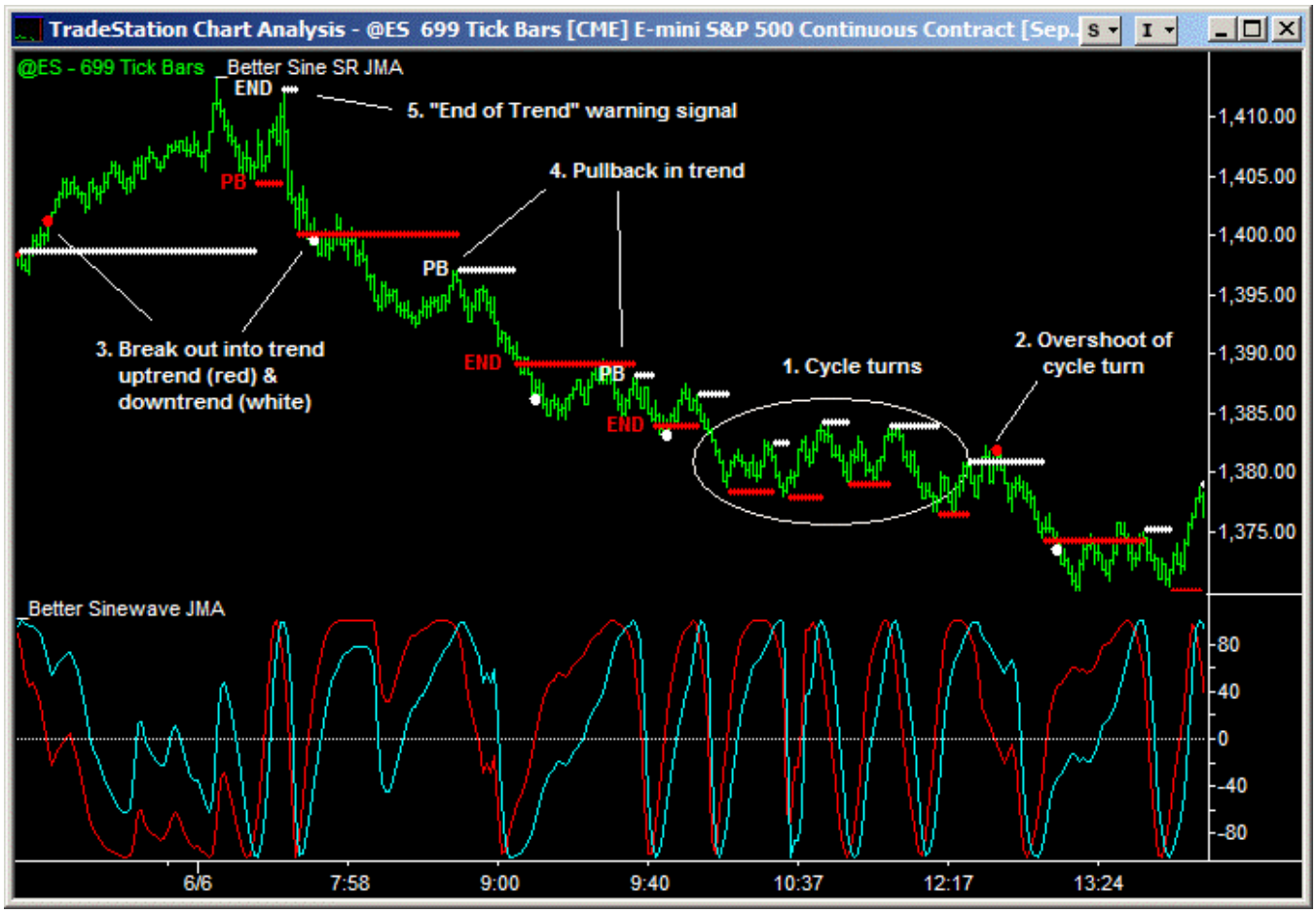
Hilbert Sine Wave – Don't Trade Cycles Without It !

Summary of what you'll learn in the feature article below:

- The Hilbert Sine Wave is a unique indicator – it combines the best characteristics of an oscillator as well as the best characteristics of a moving average.
- The "Better Sine Wave" is an improved version of John Ehler's Hilbert Sine Wave – it defines market structure with support and resistance levels during cyclical periods; and breakouts, pullbacks and end of trend signals during trending periods.
- The "Better Sine Wave" indicators work in any time frame (tick to monthly charts) and for any market (futures, stocks, fx, etc.).
- Volume patterns such as Volume Climax and High Volume "Churn" can be used to confirm turning points and identify high probability trades.
- Trend moves in a lower time frame are cycle moves in a higher time frame – a key concept when trading with multiple time frames. Again, this can be used to confirm turning points and identify high probability trades.
- Lastly, the original Hilbert Sine Wave cycle algorithm still outperforms newer versions that use Discrete Fourier Transforms or Bandpass Filters.

The Hilbert Sine Wave – A Unique Indicator



Hilbert Sine Wave: Types of Signals

The Hilbert Sine Wave was developed by John Ehlers and first published in his book "Rocket Science for Traders". The indicator measures cyclical price activity and produces a sine wave plot, as shown in the bottom half of the Emini chart above. Two lines are drawn (blue and red) and crossovers signal cyclical turning points.

What makes this indicator unique is that it distinguishes between cyclical and trending price activity. During periods when the price activity is trending, and not displaying cyclical characteristics, the lines don't cross and the indicator doesn't plot the normal sine wave – the lines look "out of synch".

In this way, the Hilbert Sine Wave combines the best characteristics of an oscillator – *signaling over–sold and over–bought in a cyclical range* – as well as the best characteristics of a moving average – *signaling the start and end of a trending move*.

My version of the Hilbert Sine Wave (called "Better Sine Wave") plots these cyclical turning points on the price chart. They appear as support and resistance levels – red and white dotted lines on the Emini chart above.

Markets alternate between periods when price is range bound or cycling and periods when price is moving to a new level or trending. Cyclical periods are characterized by price bouncing off support or resistance levels and failed breakouts or "overshoots". Trending periods are characterized by new highs or new lows and pull backs that then continue in the direction of the trend, until exhausted.

Using the Better Sine Wave support and resistance levels, market structure can be defined in the following 5 ways (numbered on the chart above):

1. Cyclical turning points where price bounces off the support and resistance levels almost perfectly (red & white dotted lines)

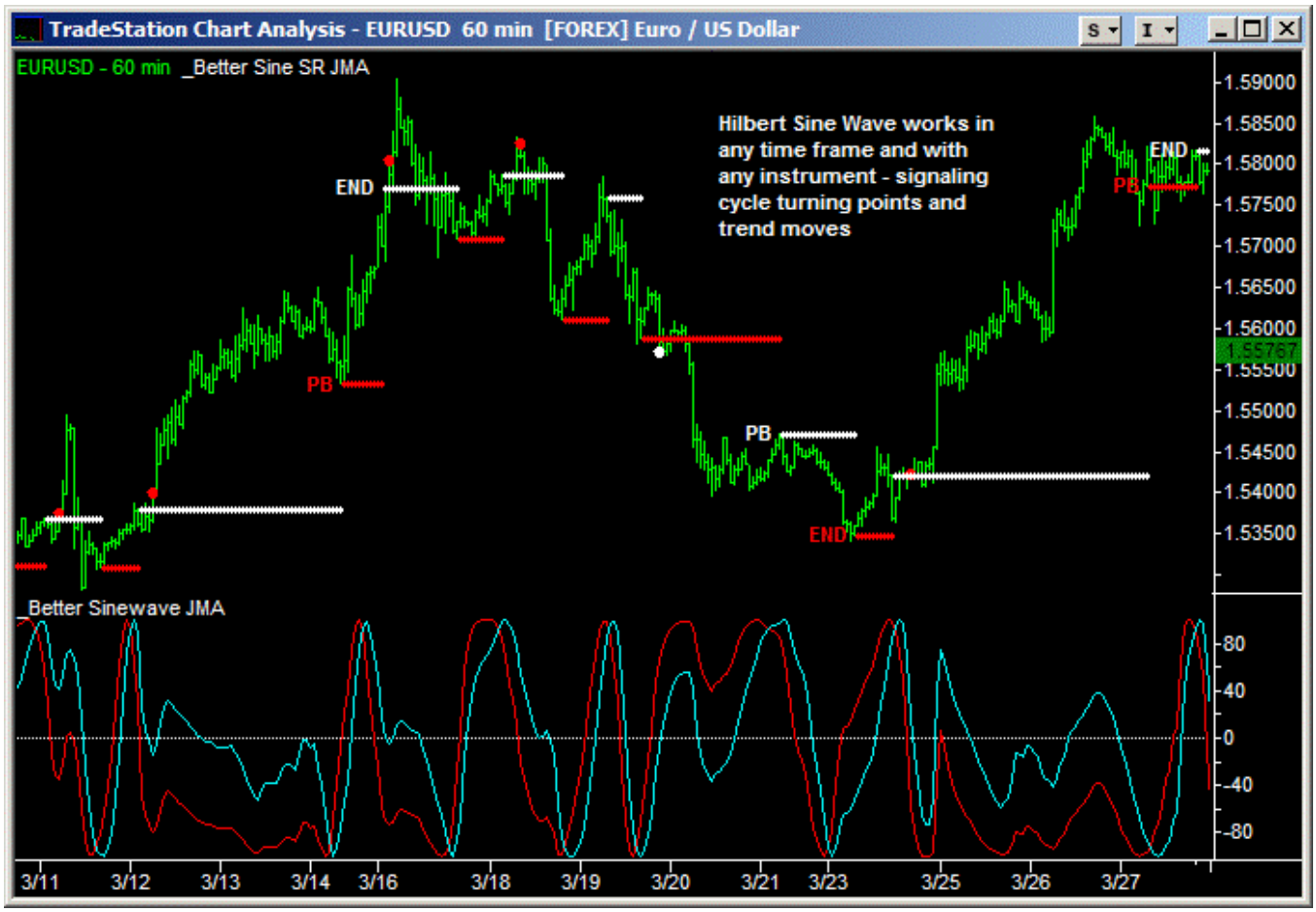
2. "Overshoots" of cyclical turning points where market momentum causes price to exceed a support or resistance level before the cycle resumes (red & white dots)

3. Breakouts from cyclical into trend mode, where an "overshoot" keeps on going and the market makes a strong, directional or trend move (also red & white dots)

4. The trend move loses momentum and pulls back to a cyclical turning point before resuming the trend move ("PB" text auto–plotted on chart), and

5. The trend ends with a final cyclical turn ("END" text auto–plotted on chart).

Hilbert Sine Wave – All Time Frames and All Instruments



Hilbert Sine Wave: Euro 60 minute Example

More screenshots of the Hilbert Sine Wave

The beauty of the Better Sine Wave indicator, and the support and resistance levels it generates, is that it can be used to define market structure in any time frame:

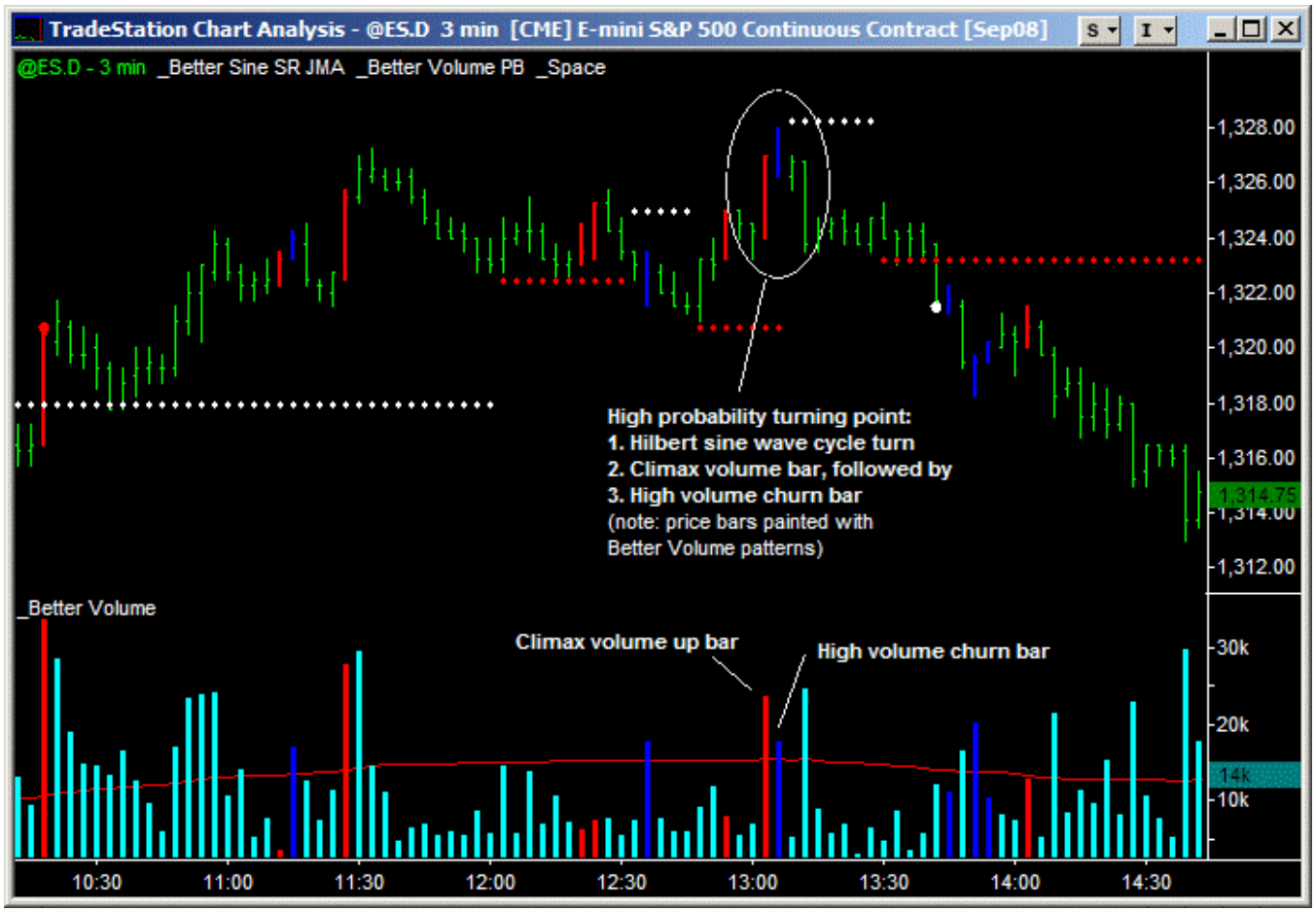
- Tick bars
- Minutes
- Hourly
- Daily
- Weekly, and
- Monthly

And for any instrument or market:

- Futures
- Stocks
- FX
- Indices
- Options, etc.

The chart above shows the Better Sine Wave on a 60 minute chart of the Euro against the US Dollar. The link beneath it will take you to a page showing other markets and different time frames – this truly is a "universal" indicator.

Hilbert Sine Wave and High Probability Turning Points



Hilbert Sine Wave: High Probability Turning Point

A key skill when trading with the Hilbert Sine Wave is determining whether a cyclical turning point is valid or not. That is, will price "respect" the support or resistance level, or "overshoot" and maybe even develop into a trend move instead?

High probability turning points can be identified by looking for 2 things:

- Coincident cycle turning points in higher time frames, and
- Volume confirmation patterns, such as High Volume "Churn" (identified using the free Better Volume indicator)

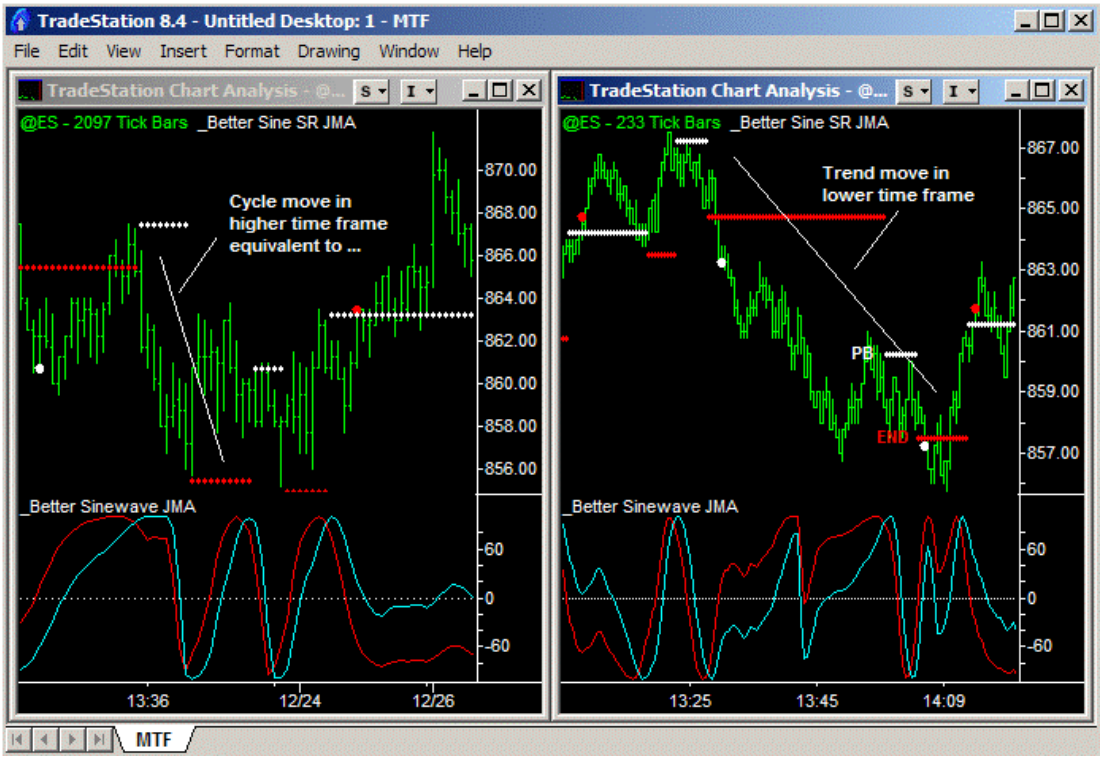
The same sequence of volume patterns are repeated time and again at market turning points. A typical sequence at a market top goes like this:

1. Climax Volume up bar where the bar's range and volume are both very high
2. High Volume "Churn" bar where the bar's range is small but the volume is large
3. Low Volume and small range bars indicating a lack of demand
4. Sometimes a final Climax Volume up bar to catch stops
5. The top is confirmed when there is a high volume, large range down bar

The chart above shows a simple example of a Climax Volume up bar followed by a High Volume "Churn" bar on a 3 minute chart of the Emini. This volume pattern coincides with a cyclical turning point, identified using the Better Sine Wave indicator. Thus we have price and volume signals indicating a high probability trade.

When these volume patterns occur with coincident Hilbert Sine Wave turning points in two different time frames, the probability of a valid turning point is greatly increased!

Trading with the Hilbert Sine Wave and Multiple Times Frames



Hilbert Sine Wave: Multiple Time Frames

A key principle of using the Hilbert Sine Wave with multiple time frames is that *trend moves in a lower time frame equate to cyclical moves in a higher time frame*. Since the Better Sine Wave indicator can be used to predict cyclical turning points AND the end of trending periods, it is uniquely capable of being used in multiple time frame analysis.

Let me give you an example. In my trading I use 3 time frames, each a multiple of 3 times the lower time frame:

- Day Trading: 233 tick, 699 tick and 2,097 tick (233 x 3 = 699 and 699 x 3 = 2,097)
- Swing Trading: 45 min, 135 min and Daily (45 x 3 = 135 and 135 x 3 = Daily)
- Position Trading: Day, Week and Month (Day x 5 = Week and Week x 4 = Month)
- Or anything in between: 1 min, 3 min, 9 min or 5 min, 15 min, 45 min, etc.

The cyclical turns in the highest time frame in each group is used to determine the overall trend. Then the lowest time frame in each group is used to time entries. When turning points in 2 of the 3 time frames coincide, the chances of a large range move are increased. Then if you also look for confirmation from volume patterns, the chances of catching a good trade are increased even further.

The Emini 2,097 and 233 tick charts above illustrate the point. In the highest time frame (2,097 tick) we have a cyclical move down from 867 to 856 highlighted. This determines the overall trend and the direction we should be trading in. In the lowest time frame (233 tick) we have several possible entry points:

- Cyclical top at 867 that coincides with the cyclical top in the 2,097 tick chart
- Break into a down trend when the Support level at 865 fails
- Pull back ("PB") in the down trend at 860, and then
- Cover short tades when the "End of Trend" signal appears at 857.

This sequence of trades illustrates the concept of a trend move in a lower time frame being equivalent to a cyclical move in a higher time frame. Again, remember to look for confirmation from volume patterns to increase your winning percentage.

Which Version of the Hilbert Sine Wave Should You Use?

	WMA	JMA	Cyber.	Hull	DFT	B'pass
Visual Score	0	–1	–3	–2	–5	–7
Profit	$6.7k	$2.4k	$1.4k	$0	($3.0k)	($3.4k)
Profit Factor	1.07	1.07	1.01	1.04	0.97	0.97
No. Trades	1,675	1,747	1,883	1,997	1,666	2,057
% Profitable	53%	53%	49%	52%	52%	45%
Bottom Line	BEST	2nd				

Hilbert Sine Wave: Visual Score & System Results Trading 1 Emini Contract

John Ehlers, the developer of the Hilbert Sine Wave, has created 4 different versions of this indicator and there are another 2 possible variations:

- Original code from "Rocket Science for Traders" using weighted moving average
- Original code using Jurik moving average smoothing (what I use)
- Original code using Hull moving average smoothing (fast & free moving average)
- Updated code from "Cybernetic Analysis for Stocks and Futures" book
- Alternative approach using Discrete Fourier Transform (DFT)
- Alternative approach using Bandpass Filters

I have assessed all 6 versions on 2 criteria. First, comparing support and resistance levels generated by the Better Sine Wave algorithm on a 233 tick Emini chart and assigning a visual score, relative to the original weighted moving average version (score 0). Second, back–testing 4 different systems on a 699 tick Emini chart:

- Cycle trades (buy at support, sell at resistance)
- "Overshoot" trades (buy at overshoot of support, sell at overshoot of resistance)
- Breakout trades (buy at overshoot of resistance, sell at overshoot of support)
- Pull back trades (buy at pullback in up trend, sell at pullback in down trend)

The results of all the systems were then added together, allowing a quantitative comparison of the different Hilbert Sine Wave versions. The results are summarized in the table above. Don't forget, this is taking every trade with no filtering.

Bottom line – the original code using a weighted moving average to smooth the input data still works best! To check out all the comparison charts follow this Hilbert Sine Wave link.

Better Sine Wave In Action

Follow these links to read over 40 artilces on the Hilbert Sine Wave, John Ehlers and trading with Multiple Time Frames. Or read these case studies showing the Better Sine Wave indicators in action:

- Trading with the Hilbert Sine Wave and Multiple Time Frames
- Hilbert Sine Wave Scores 10–out–of–10 Trades
- Trading Pull–Backs
- Trading Google with the Hilbert Sine Wave
- Which Version of the Hilbert Sine Wave is Best?

If you want to see daily examples of the Hilbert Sine Wave in action then subscribe to this site's free newsletter.

The Better Sine Wave Indicators

The Better Sine Wave indicators shown in the videos and charts above are now available for sale and immediate download. Here's what you get:

- 3 TradeStation Indicators + 1 EasyLanguage Function to program your own systems
- 9 High Definition Video Tutorials (54 min.) covering everything you need to know
- 55–page Trading Manual with annotated charts to accompany the video tutorials
- The indicators work on all TradeStation charts and use the improved Sine Wave code – no cycle glitches & better entry signals
- All the indicators have alerts so you can be warned when new support or resistance levels are drawn or breakouts, pullbacks and end of trend signals occur
- Bonus indicators: Better Sine Wave Paint Bar (plots trending periods) and Jurik Moving Average versions of the indicators
- Locked TradeStation EasyLanguage code

The 9 Better Sine Wave high definition online video tutorials – total 54 minutes – cover the following topics:

- Installation instructions (8 minutes)
- Defining market structure (7 minutes)
- All time frames & all markets (8 minutes)
- Trading with multiple time frames (9 minutes)
- Using volume patterns for confirmation (8 minutes)
- Trading with multiple time frames & volume confirmation (7 minutes)
- Settings for Emini, FX, Stocks & Commodities (4 minutes)
- JMA versus default version of the indicators (2 minutes)
- Summary of key points (2 minutes)

What People Are Saying About The Better Sine Wave

"Love the Better Sine Wave indicator on tick charts - it picks a ton of great trades. I have been investing/trading for 15 years and your indicators have re-lit the fires under my feet. Great work." John R.

"I am amazed at what this indicator can do. It really does work for all time frames and all markets. I have been watching the Better Sine Wave indicator on the ER2 1,000 share volume bar chart … just amazing! I use it to scalp 1-1.5 point trades or sometimes to scale out. I had never even heard of this indicator until I went to your site! Great work Barry." Victor H.

"I paid for the Better Sine Wave indicator on my first trade today. I was in a trade using my existing system but the Better Sine Wave identified a top on the 233 tick chart. Instead of using my usual profit target, I exited. 40 minutes later and we're back down at my entry level - I'm glad I followed that exit signal!" Michael L.

"I'm hooked on the Better Sine Wave indicators." Mark C.

"I have bought so much crud and been misled by so many. Finally, I found your tools and think they're practical and valuable. I purchased the Better Sine Wave and Better TRIN and am very thankful. Everyone else seems to be charging so much money and I appreciate the fact that so much of your stuff is either free or a nominal fee - very refreshing." David B.

"I love the Better Sine Wave and the support and resistance levels it generates. It works really well." Anon. (4Q Survey results)

"Your improvement on Ehlers' indicator is really, really :)) good! Your Better Sine Wave indicator is great!" Paolo A.

"Very happy with your indicators. Your Better Sine Wave is excellent." Ash K.

"I purchased your Better Sine Wave and Better TRIN indicators. They are very good and unique." Wei Y.

"I'm delighted with the Better Sine Wave indicators. Great stuff. Thank you." Phil H.

"Very happy with your excellent Better Sine Wave SR indicator." Ashley H.

"Barry, Better Sine Wave indicators working well. Helps with the rhythm of the market." Robert W.

"I bought all three of your indicators a few months ago. I enjoy your Better Sine Wave indicator and comparing it to Ehlers' original, yours seems a lot better. Thanks very much!" Brent M.

"The Better Sine Wave SR indicator has an amazing way of catching tops and bottoms." Bob V.

"Thank you for your fantastic products. I am very pleased with how the Better Sine Wave has improved my trading. Great job and fantastic value!!" Robert C.

"The Better Sine Wave kicks butt!" Peter S.

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